

Dr. Robert G. Wright Veterinary Services

6958 Wellington Road 16, R.R.1, Belwood, Ontario N0B 1J0 • (519) 843-1783 • Fax (519) 843-3628 • www.pawsitiveexpress.com • www.horsenewsandviews.com

INFOSHEET

Hay for Horses and Contamination

Dr. Robert G. Wright

With the drought this summer and hay in short supply, there has been hay taken from fields that previously were not used for hay production. Some of this hay contains some unusual plants that may be problematic for horses. One of the most important skills a horse owner needs to acquire is the ability to identify the normal mixture of plants that appear in hay and pasture. The others can be collected and submitted to an expert for identification. Hay can be a composition of one or more legumes or grasses in various proportions. (Both common and Latin names are used because some plants will have different names from region to region.)

Legumes

The common legumes found in hay include alfalfa, clover, Bird's foot trefoil, and vetch. They are higher in protein than the grasses because the major limiting component of protein synthesis is nitrogen. Legumes fix nitrogen from the air and therefore their crude protein content in hay can be 15-30% on a dry matter basis and therefore desirable as an excellent protein source.

Alfalfa hay (*Medicago sativa*) also called lucerne is well accepted by horses. Alfalfa has an abundance of leaves and horses will be observed readily consuming the leaves and pushing the courser stems aside. Horses are commonly seen "vacuuming" the bottom of the hay manger for the leaves.

Horses like **clover** (*Trifolium spp.*). White Dutch (*T. repens*) or common **white clover** is a low horizontally growing plant (less than 5 inches). In hay, only a leaf or a flower will be seen on a small secondary stem. **Red clover** *Trifolium pratense* grows upright with a hairy stem. It is a biennial which means it will live for about two years and then will die off unless it is allowed to re-seed itself. As a hay crop, red clover is hard to dry and becomes moldy easily. These molds can contain estrogenic properties which can interfere with the reproductive cycles of mares. The clovers can also produce slaframine which is known as the "slobber factor". Slaframine will make horses salivate profusely. Red clover has also been associated with red urine in some horses. Porphyrins are excreted into the urine and will oxidize and turn red. This is usually seen during the winter when horses urinate on the snow. Alsike clover *Trifolium hybridum* grows upright with flowers along the entire length of the stem. It must be differentiated from the other clovers because it can contain a fungus which causes photosensitivity and hepatic failure in horses. **Horse pastures and hay fields should not contain alsike clover.**

Bird's-foot Trefoil (*Lotus corniculatus*) is a low growing perennial with a yellow flower. It is common in cattle and sheep pastures and hay fields. It increases each year and does well on poorly drained soils. However, it contains bitter tannins which many horses dislike and refuse to eat.

The **vetches** for the most part are considered weeds in Ontario because they invade pastures and cultivated fields. However, in some countries, vetches are grown as livestock feed. Vetches are perennial and grow from seed as well as underground root-stock. Tufted vetch (*Vicia cracca*) is a common invader of Ontario fields. Crown vetch (*Coronilla varia*) is used in erosion control along road ways and is toxic to horses. Hairy vetch (*Vicia villosa*) can cause granulomatous inflammation.

Grass Hay

Grass hay commonly consists of one or more of the following grasses; timothy, brome grass, orchard grass, reed canary, perennial rye, Canada or Kentucky bluegrass, and fescue. The grasses produce seed heads in late May to early June in Ontario before the weather is reliable enough to cure hay. Therefore, by haying time, their nutrient content will have decreased below 10% crude protein (on a 100% dry matter basis). **Timothy** (*Phleum pratense*) is the traditional grass of horses and is recognized by its spike-like panicle. Timothy is easy to establish and dries quickly when making hay. **Smooth brome grass** (*Bromus inermis*) is a tall grass which grows readily on well drained soils. It is difficult to plant because of its large, light, fluffy seed which causes difficulties with many seed drills. **Orchard grass** (*Dactylis glomerata*) is an early maturing perennial bunchgrass with a distinctive “cocks-comb” like seed head. **Reed canary** (*Phalaris arundinacea*) grows to two metres and has good tolerance to both poor drainage and drought conditions. Older varieties however contain unpalatable alkaloids. **Canada and Kentucky bluegrass** is a low growing perennial with a fine seed head. It has shallow root development and therefore has poor growth in the hotter parts of the summer. However, bluegrass creates a good sod that will withstand heavy traffic. Tall **fescue** (*Festuca arundinaceum* or *Lolium arundinaceum*) has a fibrous root system which is good for high traffic areas. **Perennial rye** (*Lolium perenne*) can withstand high soil moisture and high temperatures. Both perennial rye and tall fescue can contain ergot alkaloids which can extend the gestation length of pregnant mares. This will result in delayed births and dead, weak or dying foals.

Common Weeds in Hay

In the first year a hay field is seeded, annual weeds will be present in the hay unless the farmer has used plant specific herbicides to eliminate them. In subsequent years, the annual weeds will not be present but perennial weeds will increase in numbers unless they are controlled.

The annual weeds that can occur in large numbers in hay include; bristly foxtail, fall panicum, hoary alyssum and mustard. When bristly foxtail (*Setaria verticillata*) is mature it contains forward-pointing barbs which can penetrate the gingiva of horses and cause oral ulcers.

Fall panicum (*Panicum dichotomiflorum*) is toxic to the liver of horses. Hoary alyssum (*Berteroa incana*) can cause laminitis and limb edema. Wild or common mustard (*Sinapis arvensis*) can cause digestive disturbances.

Perennial weeds commonly occur in low numbers in hay unless under special circumstances such as cutting hay along the border of a woodlot or damp area. In this case, large amounts of horsetail (*Equisetum* spp.)



Figure 1: Foxtail



Figure 2: Ulcers in mouth

or bracken fern (*Pteridium aquilinum*), can be incorporated into the hay in sufficient quantities to cause harm if fed over long periods. Buttercups (*Ranunculaceae spp.*) are common in hay but the toxic chemical that causes oral lesions when grazed fresh dissipates in the hay curing period. Other perennial weeds may be present in low numbers but are too numerous to include in this article.

You can help yourself by learning the plants that are normal contained in horse hay. Resources such as the Ontario Ministry of Agriculture, Food

and Rural Affairs website can be referred to for identification of the common pasture plants and weeds. You can find factsheets on poison plants or be linked to excellent resources from my website www.horsenewsandviews.com or drop me an email at dr.bob@horsenewsandviews.com .



Figure 3: Horsetail



Figure 4: Bracken fern

Resources:

Pasture Grasses Identified: <http://www.omafra.gov.on.ca/english/livestock/beef/facts/06-095.htm>

Pasture Legumes Identified: <http://www.omafra.gov.on.ca/english/crops/facts/04-057.htm>

Ontario weeds Gallery: <http://www.omafra.gov.on.ca/english/crops/facts/ontweeds/weedgal1.htm#ten>.